Neutrino Events in the Real World

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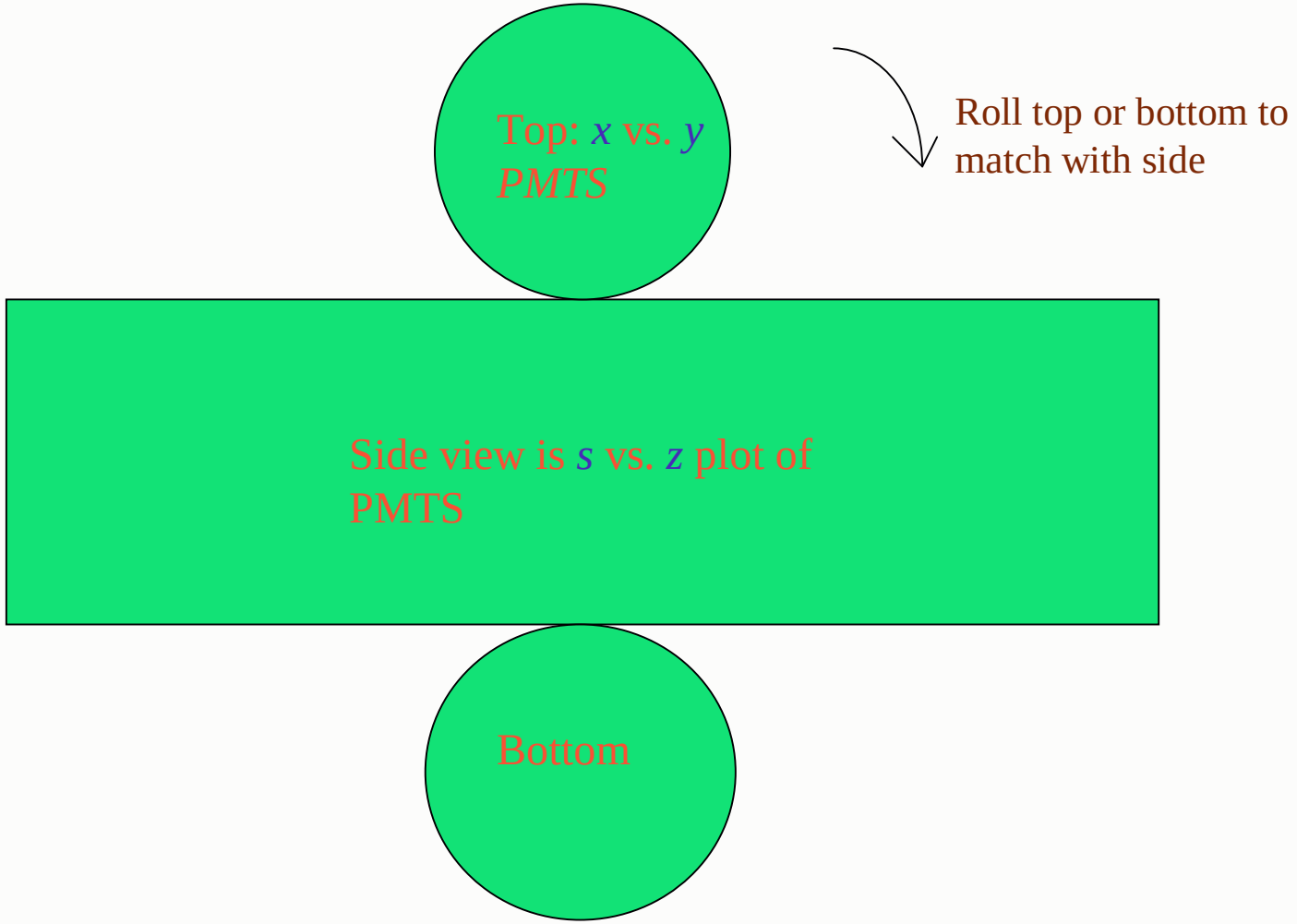
Visualization of Events in a H_2O Č Detector

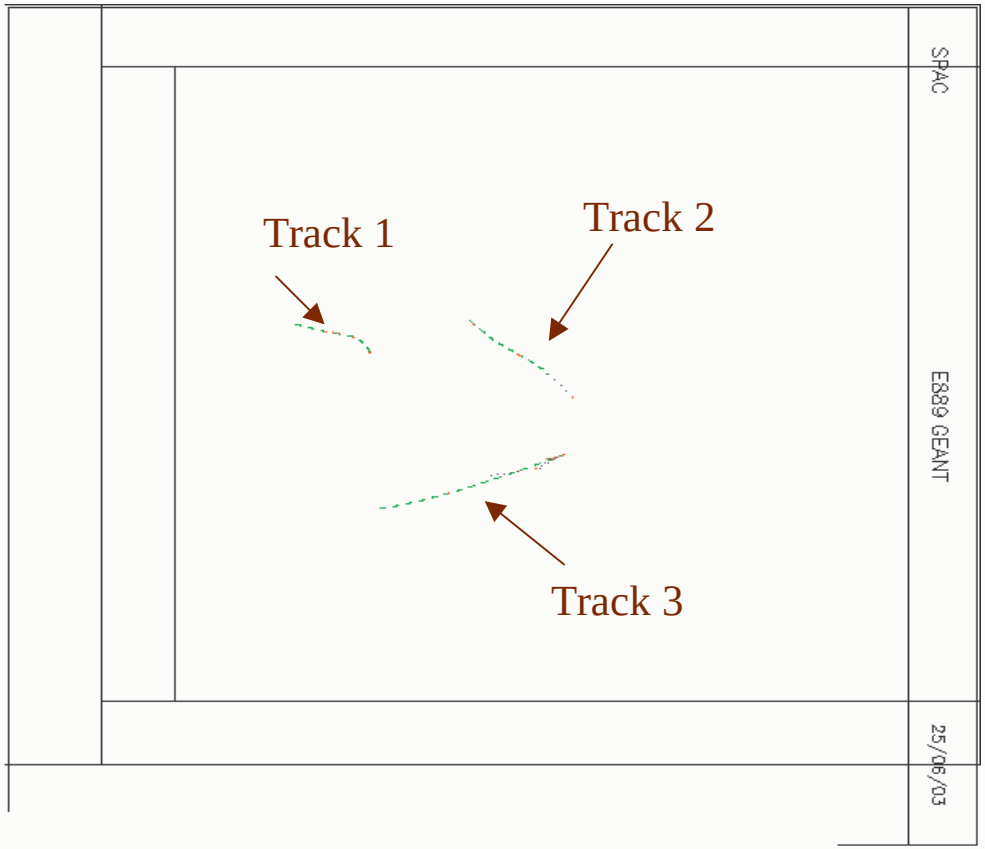
- Generation of events in GEANT:
  - Used M. Diwan's Geant model from E889:
    - This program is circa 1995.
    - It represents a single tank with mass ~2.5 ktons.
    - Table compares it to Super-K
  - Phototube hits are written out to a file.
- Phototube hits are read by ROOT and plotted.
  - ROOT is an OO version of PAW (whatever that means).
- We have run a small sample of 1 GeV μ, e, π° tracks.
  - Tracks are randomly oriented.

Attribute	E889	Super K
Mass	2.5 kton	50 kton
Phototubes	2195	11200
Height	15 m	41.4 m
Diameter	15 m	39.3 m
Tube Diameter	25 cm	50 cm
Pmt Coverage	10%	20% ?

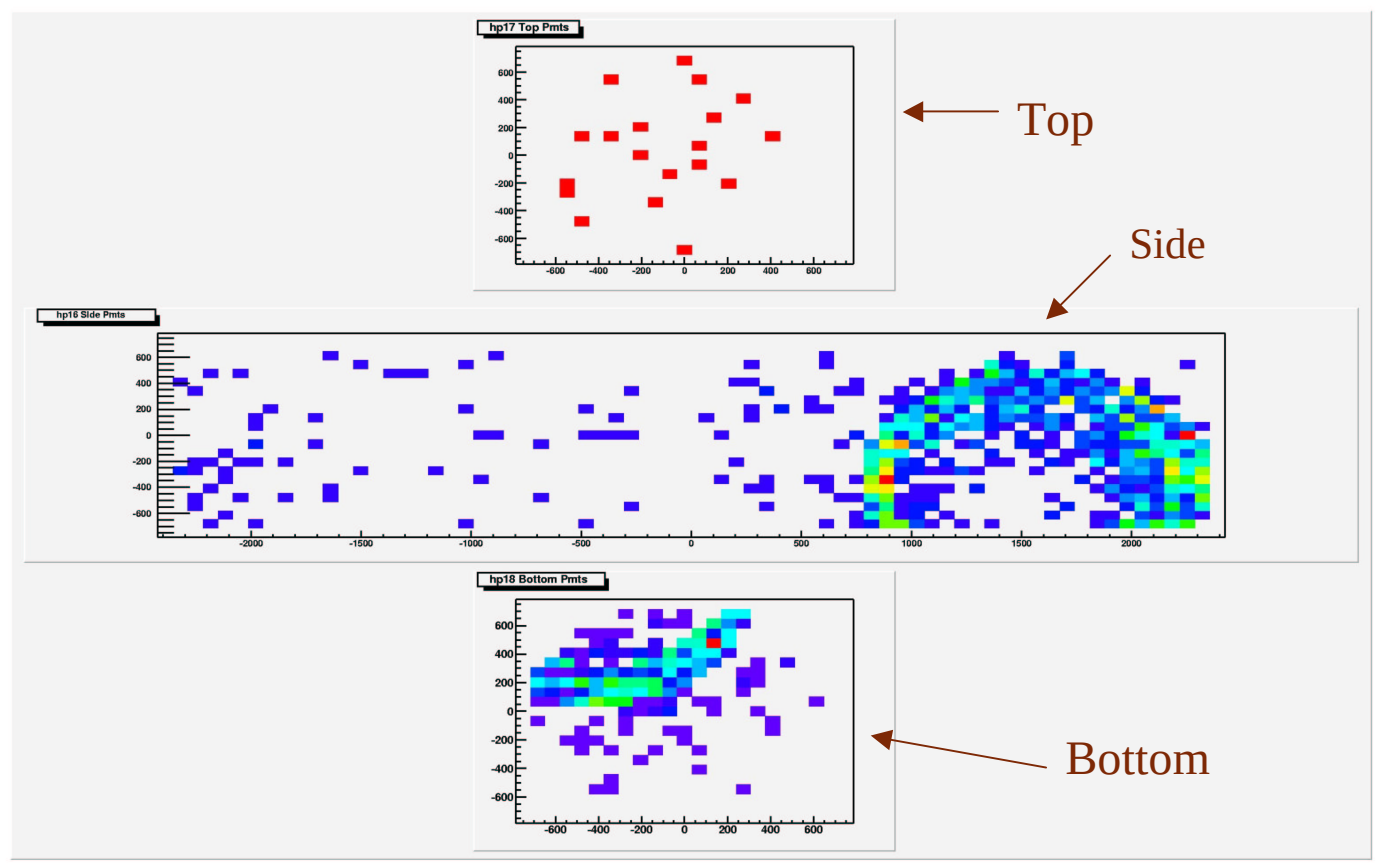
Visualization



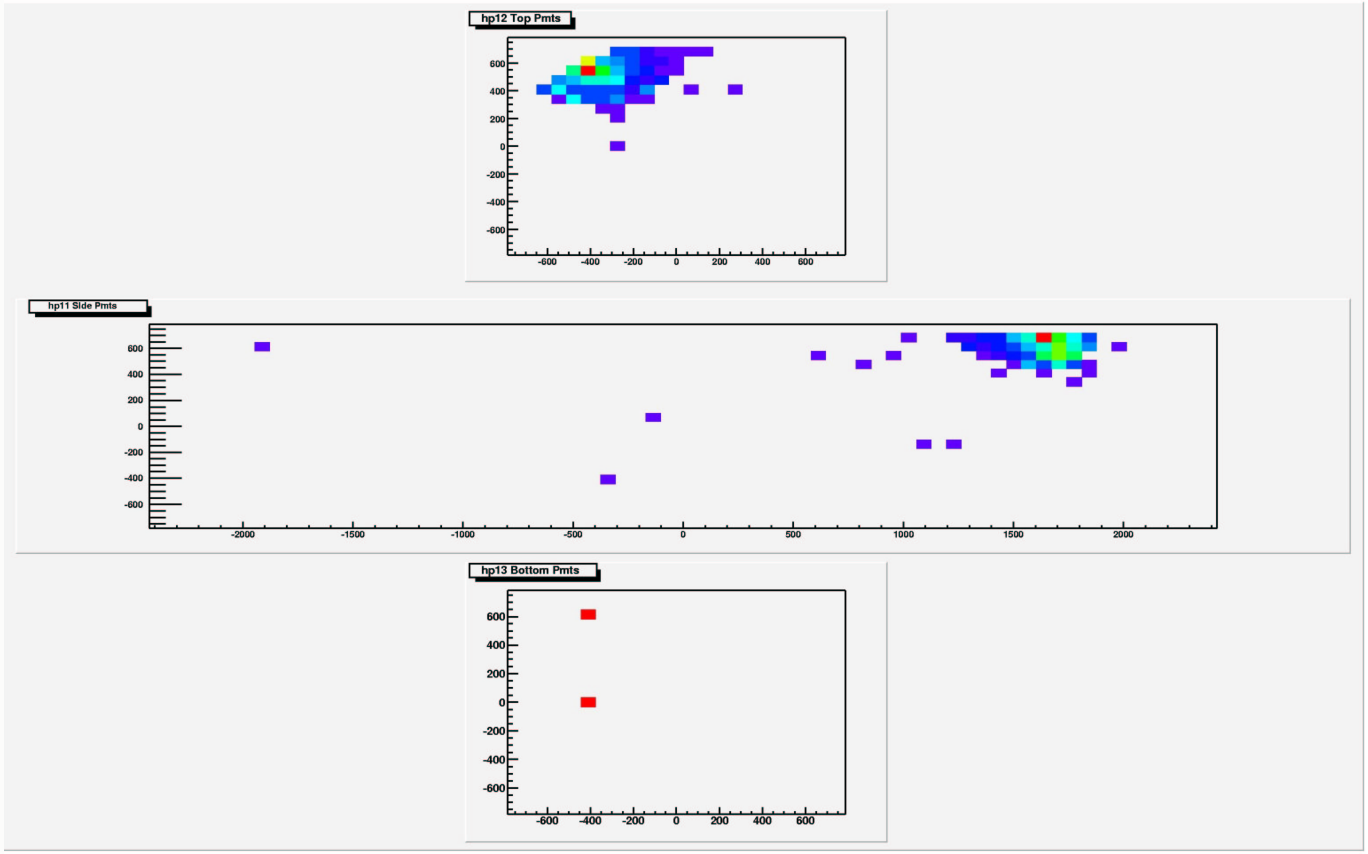
Geant Veiw of Typical Muon Tracks



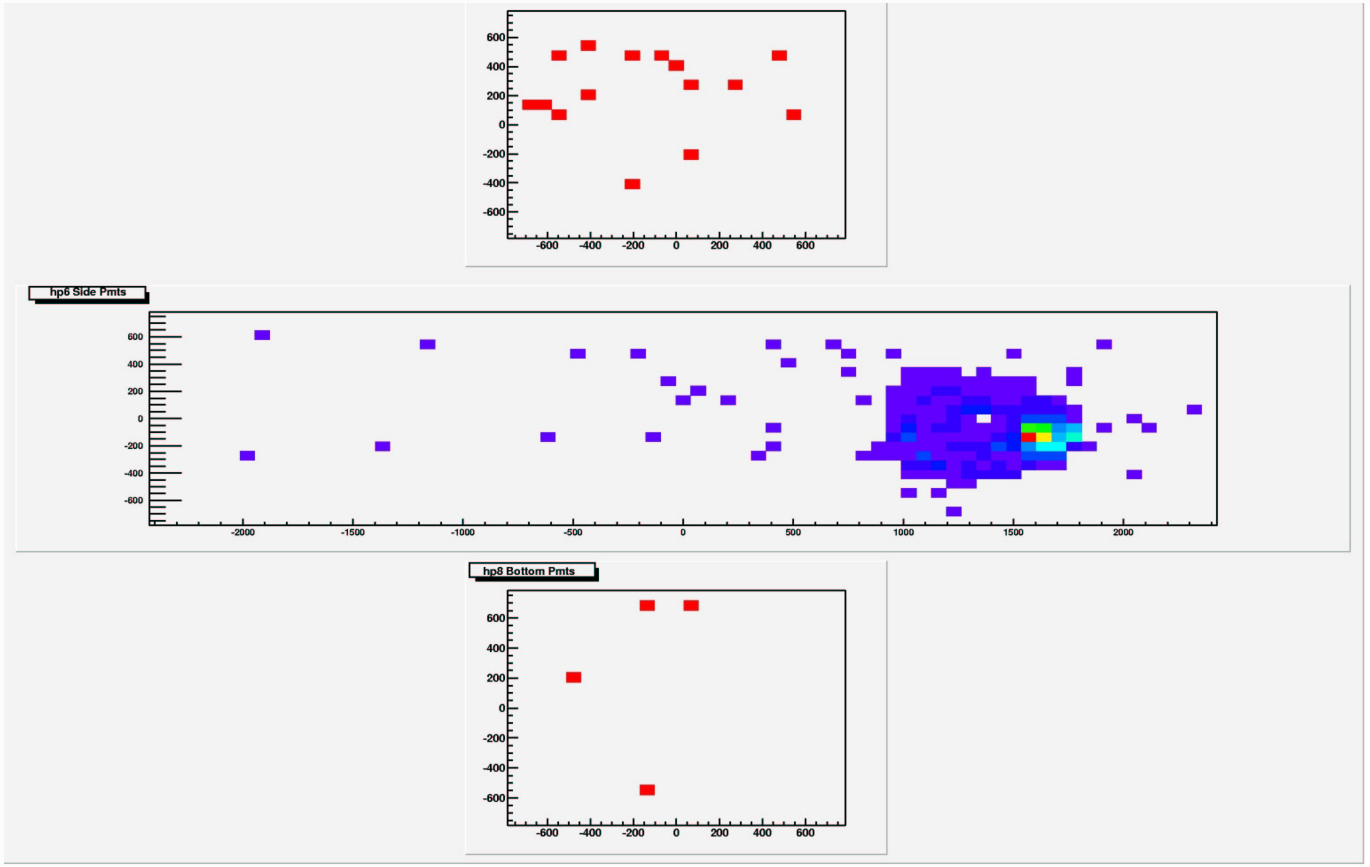
Typical Muon Track #3



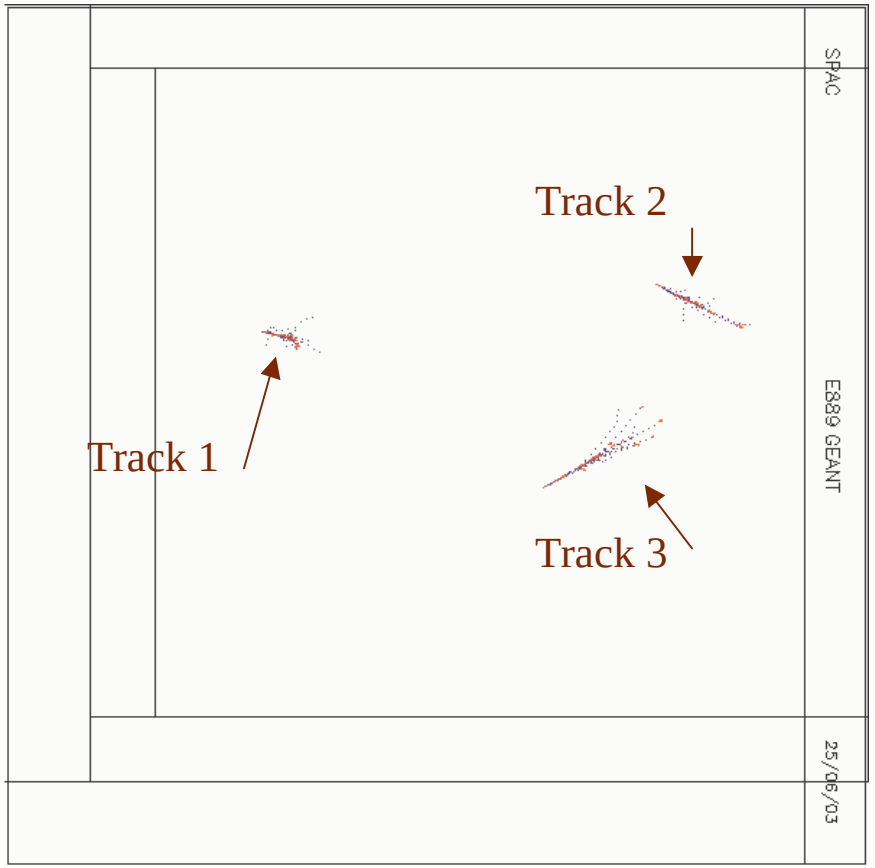
Typical Muon Track #2



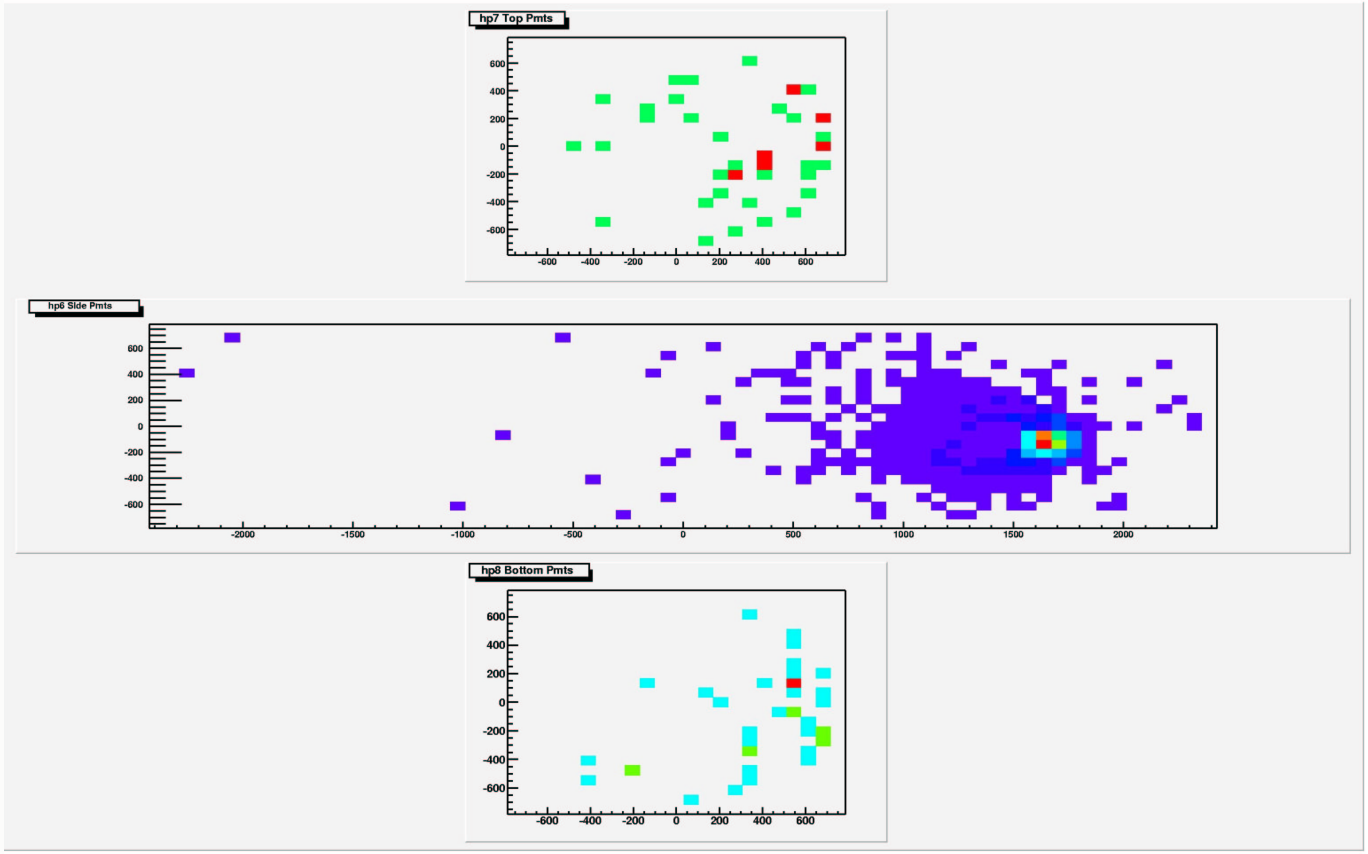
Typical Muon Track #1



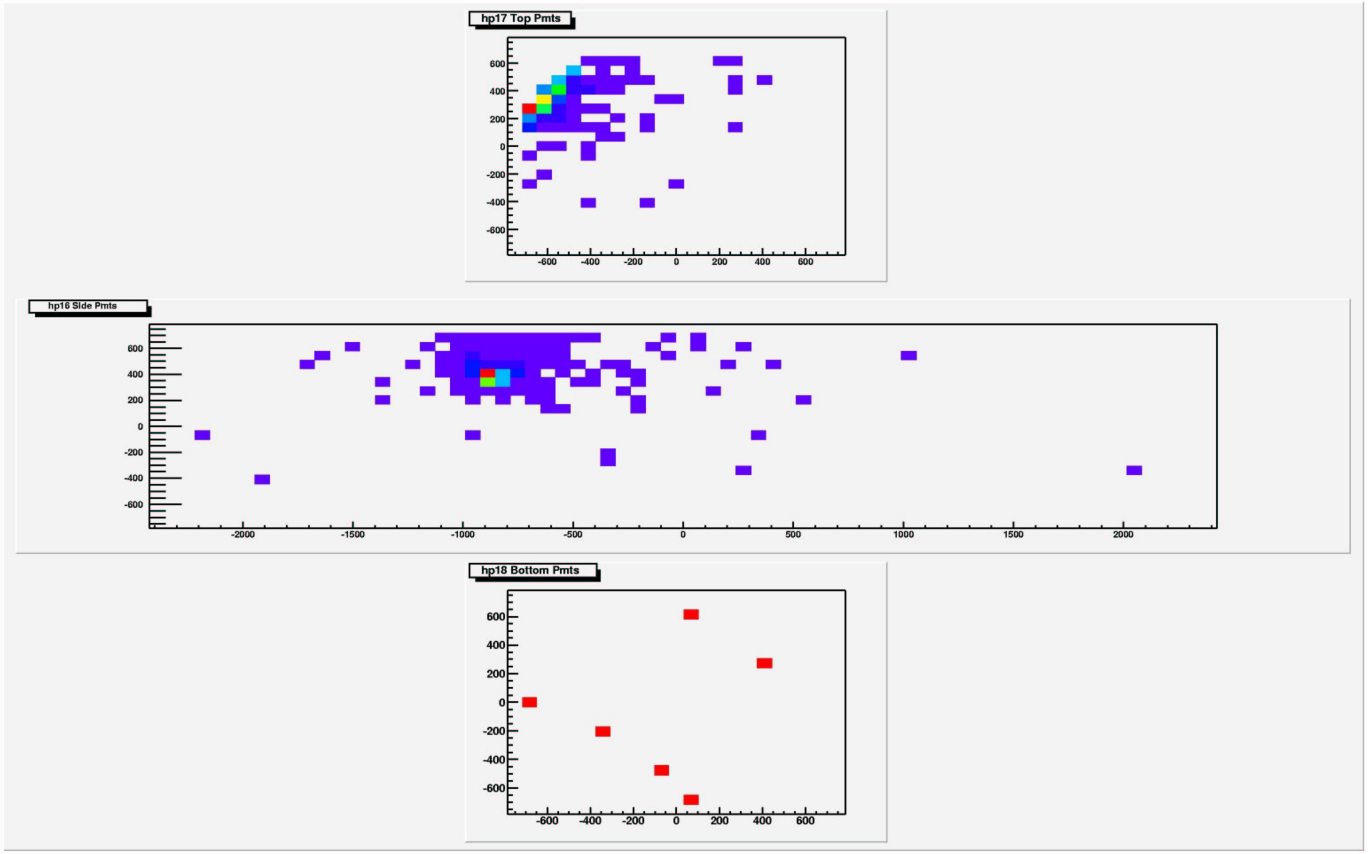
Geant View of Typical Electron Tracks



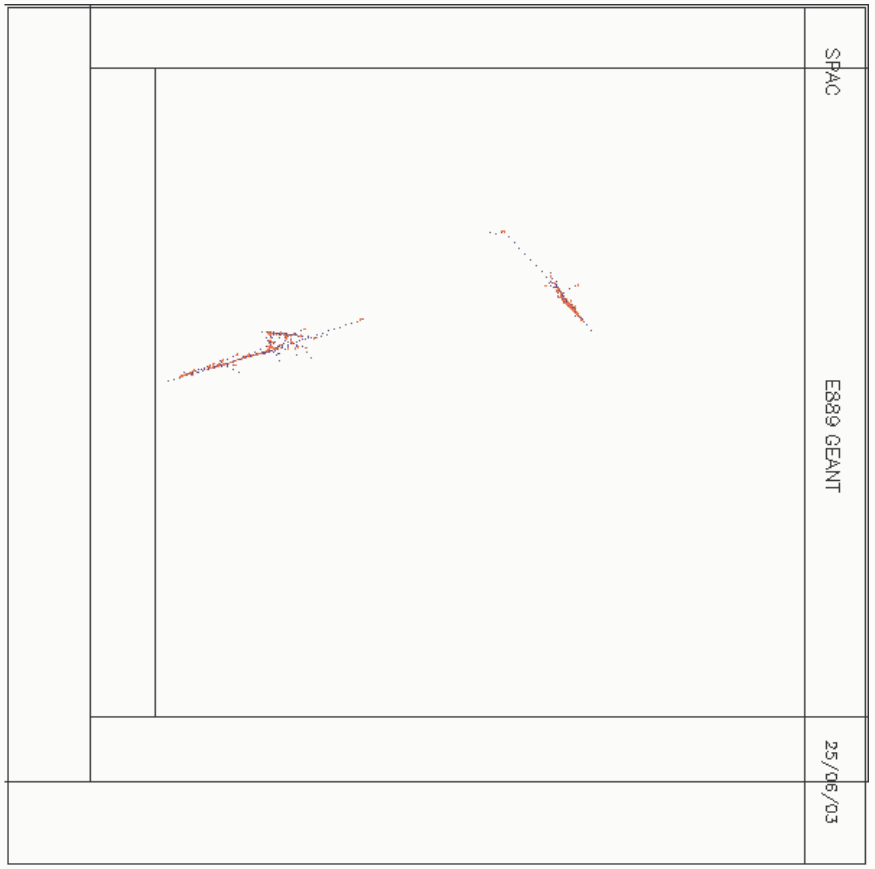
Typical Electron Track #1



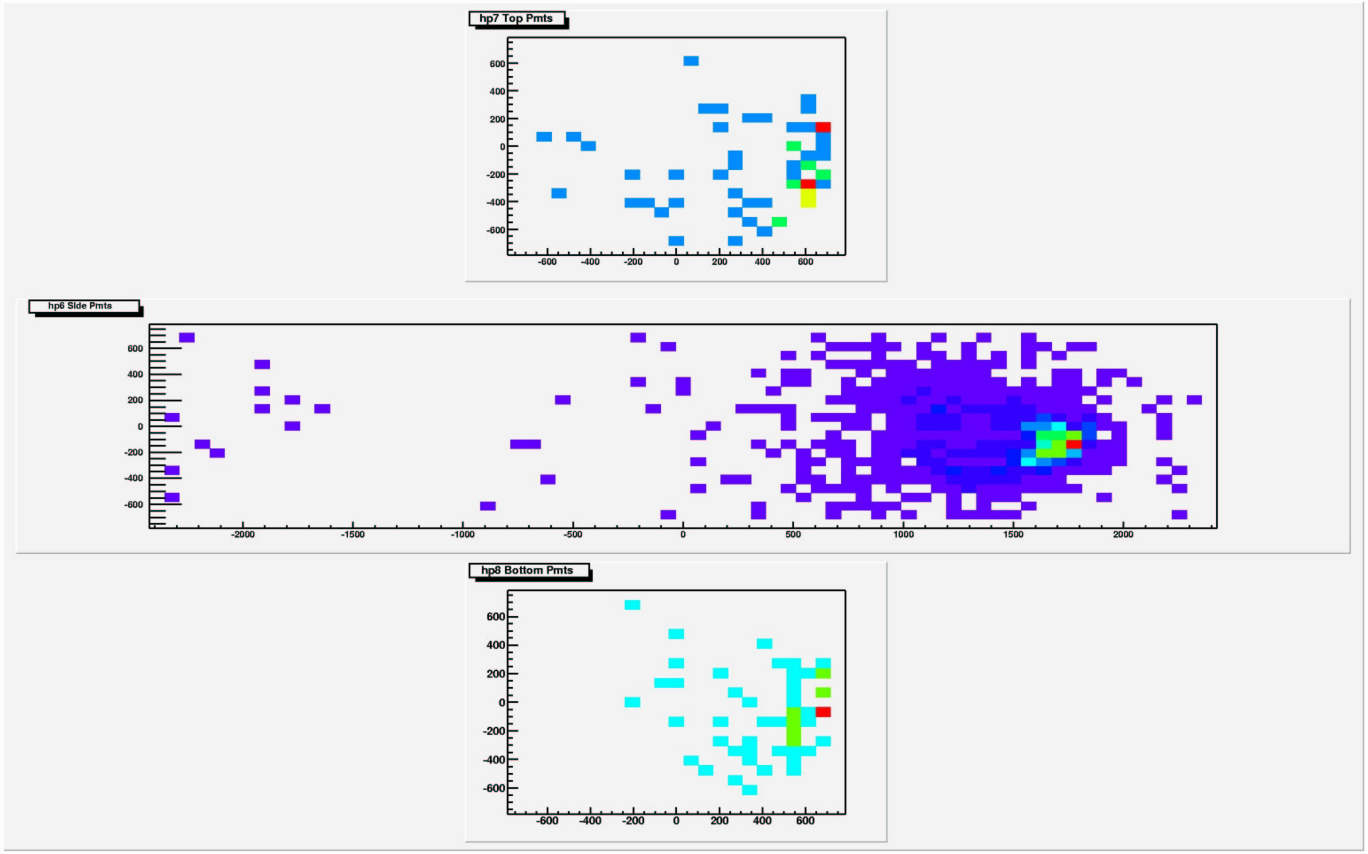
Typical Electron Track #3



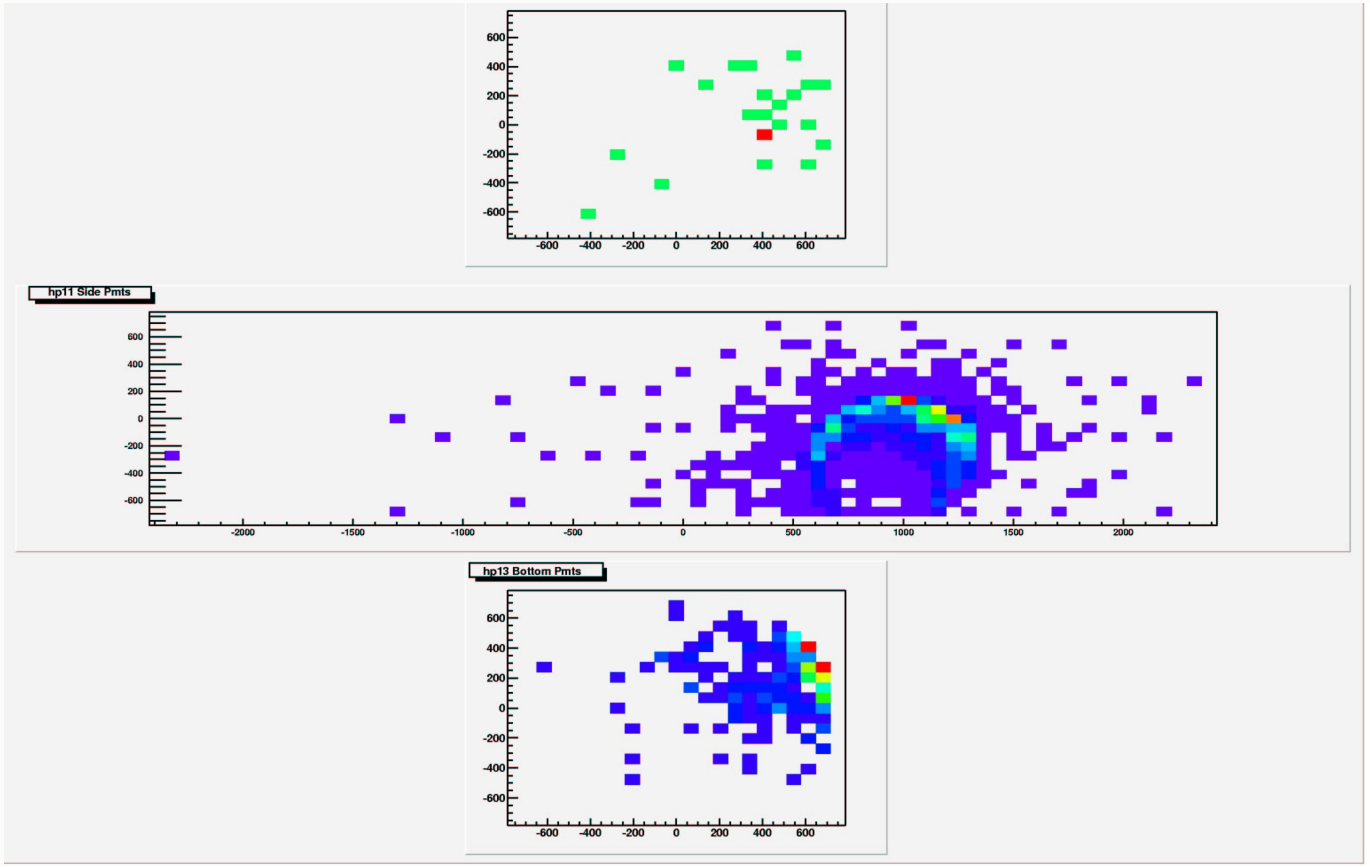
Typical π°s



Typical π° Event #1



Typical π° Event #2



Typical π° Event #3